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Review of

A microcosm of musical expression 1. Quantitative analysis of pianists' timing in the initial measures of Chopin's Etude in E major

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Judgments about relative similarity, typicality, and quality of performances are often made by critics, music lovers, and adjudicators based on their auditory impressions, knowledge, and memories. These judgments are subject to limits of perception, memory, attention and they show considerable individual differences.

The author studied piano performance since it only allows expressive variation in timing, dynamics, and articulation while there could be no vibrato and less envelope control due to its physical structure. He only used audio recordings as research data. The main objective for this research is to understand the expressive strategies and investigate the relationship between expressive performance and socio-cultural variables such as age, birth date, recording date, gender, and nationality.

There are some results for this research. He found that there are three aspects of expressive timing (basic tempo, relative modulation depth, profile shape). As for the initial upbeat observations, he found there is a wide range of values of upbeat IOI relative to mean IOI, and the 1st IOI tended to be lengthened relative to mean IOI. For the profile shape part, he found that 1st PC accounted for 61.4% of data variance; First 4 PCs for 75.9% of variance; remaining 24.1% were considered unexplained (Idiosyncratic, intentions, Lack of timing control, Measurement error). According to the Analysis with first un-rotated PC (UPC-I), Most performances fairly similar to average and lengthening tendencies are a complex function of all structural features, including melodic grouping; for analysis with rotated PCs, PC-I: Accounts for most variance (31.3%); 'Single most common strategy' as opposed to most typical mixture of strategies; Emphasizes within-segment retards were located at ends of melodic groups and possibly reflects metrical strength or melody/accompaniment separation. PC-III shows high correlations possibly result of very large value shared by two data sets. Many timing profiles loaded nearly equally on more than one PC which suggest a combination or alternation of strategies.

I'm especially interested in the socio-cultural variables. He found type IV patterns may be more common in younger generations while older artists may exhibit more unusual timing patterns; Men tend to play longer upbeats than women while women tend to play faster than men. Although the author said socio-cultural correlations were generally not strong, I think there might be still something to work on it so that we may develop a better analysis model that could tell who is the player by a given piece of performance through basic branch data structure.